

Application Number 09/858,185
Amendment dated April 16, 2004
Reply to Office Action of October 16, 2003

Amendments to the Specification

Please amend the paragraph at page 1 lines 4 through 7 as follows:

This application is a continuation-in-part of ~~copending U. S. application serial number 09/001,887, filed on December 31, 1997, and a continuation-in-part of copending U. S. application serial number 09/614,488, filed on July 11, 2000, now issued U.S. Patent Number 6,505,478, issued on January 14, 2003,~~ the contents of which are incorporated herein in their entirety by reference.

Please amend the paragraph at page 5 lines 12 through 22 as follows:

FIG. 1 is a schematic diagram of one particular temperature control system 100 in which the heat exchanger and temperature control approach in accordance with the present invention can be used. The temperature control system in the example of FIG. 1 is used in connection with a workpiece chuck 10. The chuck 10 can be used to hold on its top surface 12 a flat workpiece such as a semiconductor wafer during processing and can be of the type described in, for example, U. S. Patent number 6,073,681, issued on June 13, 2000, entitled, "Workpiece Chuck;" U. S. Patent number 6,019,164, issued on February 1, 2000, entitled, "Workpiece Chuck;" and copending U. S. Patent Application serial number 09/473,099, filed on December 28, 1999, entitled, "Workpiece Chuck;" now issued U.S. Patent Number 6,328,096, issued on December 11, 2001, all of which are assigned to the same assignee as the present application, and all of which are incorporated herein in their entirety by reference.

Please amend the paragraph at page 19 line 19 through page 20 line 3 as follows:

The mixture of air and condensed HFE fluid exits the heat exchanger 806 on line 838 and enters a modified accumulator or fluid separator 808 where the air and fluid are separated. The air/fluid mixture enters on a tangent of the inside wall of the separator at a velocity and pressure

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sufficient to induce separation. The centrifugal forces within the accumulator 808 separate the air and the HFE fluid so that the air exhaust exits through the top 840 of the accumulator 808 and the condensed HFE fluid settles at the bottom of the accumulator 808. The air exhaust valve 841 of the accumulator 808 can be blocked to pressurize the accumulator to a relatively high pressure, e.g., approximately 60 psi. With the reservoir 804 at approximately 2 psi and the accumulator 808 at approximately 60 psi, the solenoid valve SV6 is opened to force the condensed HFE fluid back to the reservoir 804 via line 832, thereby recovering a large amount of the fluid and minimizing losses and vapor escaping into the atmosphere. When the air exhaust valve 841 at the top of the accumulator 808 is opened, the separated air is carried along line 842 through solenoid valve SV8 and is vented to the atmosphere.